INFORMATION FOR THE PRESS

U.S. DEPARTMENT OF AGRICULTURE
Office of Information
Press Service

WASHINGTON, D. C.

RELEASE FOR PUBLICATION
MARCH 4, 1936 (WEDNESDAY)

THE MARKET BASKET

by
Bureau of Home Economics, U. S. Department of Agriculture

- - - - - - - -

ENERGY FOODS -- CARBOHYDRATES AND FATS

The human body is a sort of engine -- as they taught us in school. An engine must be well built and kept in good condition, and it must be supplied with power, or energy to keep it going. The automobile engine gets its power by burning gasoline as fuel. The human engine gets its energy by burning its food -- or rather by burning in the body tissues those substances in food which can be burned. Those substances are the chemical compounds known as carbohydrates, fats, and proteins. All foods contain one or more of these compounds. But the foods we rely on as "energy foods" are those that contain the most carbohydrate, or the most fat, or both.

In terms of the well-planned family dinner, then, says the Bureau of Home Economics of the U. S. Department of Agriculture, we use for their carbohydrates, breadstuffs and cereals of all kinds, potatoes, sweetpotatoes, and sugar. For fats we use butter, margarine, lard and other cooking fats and salad oils.

The important carbohydrates for body fuel are the starches and sugars. In the process of digestion all these carbohydrates are converted into the simple sugar, glucose. The glucose is absorbed into the blood and carried to all the body tissues, to be burned as needed for energy, or stored for future use. It is

stored in two ways. In the liver and to some extent in the muscles, it is converted into glycogen, or "animal starch", and stored there until needed, when it is converted back into glucose and taken up by the blood again. When we eat more starch or sugar than is used for energy or stored as glycogen, the rest is for the most part converted into fat and stored in the body tissues.

The starchy foods are more important in the diet than sugar because they always contain other food substances, and therefore serve more than one body need. In fact, some of the starchy vegetables and the whole grains contain important proteins, minerals, and vitamins. Pure sugar and pure fat have energy value only. Plants store up starch in their seeds (grains, bean, peas), and in their roots (root vegetables).

There is starch in the green fruits, also, but this turns to sugar as the fruit ripens. Each grain and vegetable has its own characteristic starch, by the way, with granules of different size and shape, so that wheat starch, corn starch, potato starch, rice starch, and all the rest are distinctly different in appearance under the microscope (and have different values for laundry purposes, too). Chemically, however, they are all the same carbohydrate, and have the same food value, no matter which grain or vegetable they may come from. And starch does not dissolve in water; a fact worth remembering when thickening a sauce.

Sugar, on the other hand, which does dissolve in water, is found in the juice or sap of plants and trees, and in their fruit, also in milk. And there are, chemically speaking, five different sugars in the common foods. In the juice or sap of the sugar cane, sorghum, the sugar-maple tree, and the sugar beet, the sugar is sucrose. All our table sugar, then, is sucrose. In fruits and in honey the principal sugar is fructose or levulose, often called fruit sugar, which is the sweetest of all. Both fruits and vegetables contain glucose. One other sugar, maltose, is found in sprouting, or malted, grains. Milk sugar is called lactose.

Sugar in crystalline form (granulated or powdered) or in sirup is highly concentrated -- so much so that a teaspoonful eaten alone may be cloying, and sufficient to take away the appetite. It has, of course, high energy value, but it has nothing else except its flavor. And there, authorities tell us, is the best use for sugar in the diet -- as flavoring. That is what sweetness is -- a flavor, very desirable when rightly used. The discriminating cook adds just enough sugar to bring out a contrast with other flavors in the food she is preparing, but too much sugar obscures other flavors. As for candies and sweets in general, they should come, as they usually do, at the end of the meal, after the other foods have satisfied the body's need for such essentials as protein, minerals and vitamins. Bread, vegetables and fat will have supplied energy.

Fats, as well as sweets, are concentrated foods. Unlike the carbohydrates, however, they are found throughout the animal kingdom, and to some extent in the vegetable kingdom, too. We have fat in concentrated form in butter, margarine, salad oil, and the various cooking fats. Lard is pure fat, so are cottonseed oil, corn oil, and peanut oil. Butter, and margarine are largely fat. Olives and most of the nuts contain a high percentage of fat. There is fat in all meats, in eggs, fish, and in milk.

As with the sugars and sirups, we cannot eat much concentrated fat. We spread the butter on our bread, we season foods with fat, we use it for shortening bread and pastry dough, we add the oil or mayonnaise dressing to the salad of vegetables or fruits. All this because we do not and should not use, by themselves, such concentrated fats as butter, lard, and salad oil. For the same reason, the good cook, when she fries anything, is careful to have it crisp and comparatively dry inside, not soggy with grease.

- - - B H - - -

INFORMATION FOR THE PRESS

U. S. DEPARTMENT OF AGRICULTURE
Office of Information
Press Service

WASHINGTON, D. C.

RELEASE FOR PUBLICATION
MARCH 11, 1936 (WEDNESDAY)

THE MARKET BASKET
by
Bureau of Home Economics, U. S. Department of Agriculture

- - -

LIQUIDS AND THE FIBROUS PARTS OF FOOD

All foods, solid or liquid, contain water. Even bread is usually 35 percent water. Fruits and juicy vegetables are often as much as 90 or 95 percent water. Potatoes are about 78 percent water. Dried seeds like grains of wheat and navy beans contain a little water. And the water in the foods we eat goes to make up the total supply the body must have for many vital purposes.

Food, however, furnishes only a small part of that total supply. To meet our needs we should drink plenty of water every day, nutritionists tell us, whether we feel "dry" or not. Our daily quota is usually counted as 6 or 8 glasses. With soups or with coffee, tea, or other beverages, which are mainly water, we can afford to drink somewhat less plain water -- but most people probably do not drink as much as would be good for them.

On the other hand, says the Bureau of Home Economics of the U. S. Department of Agriculture, it should be remembered that some of the liquid foods, though bulky because of the water they contain, have less total nutritive value than may be supposed. Water, necessary as it is, has none. Clear soups, or any soups not made with milk, have only the food values of their ingredients other than water. Consomme and meat broth, although flavorful and often useful for other reasons, are 95 to 97 percent water, and only 3 to 5 percent solids, therefore must not be

relied upon for more than a very little actual food value. This is true of the jellied form, too. Vegetable soups of course have more solids and more food value. Milk, with 13 percent solids, is highly nutritious, and milk soups and chowders have the milk values plus the values of whatever vegetables, meat, fish or other ingredients may be added to the milk.

Clear beverages, as well as clear soups, being largely water, have only the food value of their other constituents. Coffee and tea, without milk, cream or sugar have practically no nutritive value in themselves. "Soft drinks" are, essentially, flavored water. As they are usually sweet, they have the calorie value of the sugar, along with any food values their other flavoring may have. A milk drink, on the other hand, like a milk soup, contains the milk solids and it contains the values of its other ingredients — sugar, fat, and a little protein if it is a chocolate drink, for example.

Some fruit and vegetable juices, however, are rich in vitamin values, and contain some minerals and sugar. Orange, lemon, grapefruit and tomato juices, pineapple, peach, apricot and some berry juices are good sources of vitamin C.

Water, with no food value, has nevertheless a many-sided role to play in the diet. It is so necessary that the body carries in its tissues a supply which equals almost two thirds of the body weight. This supply keeps all the body tissues in shape — literally in shape and form as well as in normal condition in other respects. In the digestive tract water serves to dissolve food materials which can not be utilized until they are in solution, and it helps to make bulk, which is necessary for mechanical reasons. Water in the blood, which is about 80 percent water — carries the digested food materials to all parts of the body for use, and also carries off waste products. By evaporation through the skin, water controls the body temperature.

But the water supply in the body is constantly being used. Therefore it must be constantly replaced. Water is given off through the lungs, in breath; through the skin in perspiration, visible or invisible; and as a waste product through the kidneys. In one way or another, something like 2 to 5 quarts of water are given off every day. We make up that loss by the water we drink and the water we get in our food.

Another part of our food that plays a useful role for reasons other than nutritive value is fiber -- or rather, the fibrous parts of all the food products of the vegetable kingdom, the structure of the cereals, vegetables, fruits and nuts. This fibrous material is useful for the very reason that most of it is not digested. Its uses are mechanical. It serves as a framework to keep food particles from forming a compact mass which would not be so easily penetrated by the digestive juices. It holds water, which adds to its bulk. This bulk in itself promotes activity of the intestinal muscles.

But the fibrous parts of these foods vary all the way from the rough bran or seed coats of grain, and the seeds, cores and skins of fruits, to the soft fiber in the flesh of fruits and vegetables that have been cooked. Cooking, of course softens the fiber and makes it tender -- that is one reason why we cook cereals, vegetables and fruits. Even bran is softened by cooking, as in whole-grain cereals. The softest fiber of all is that of a puree' -- the pulp of vegetables which have been cooked and put through a sieve. This is done especially with peas and beans for soup, or with leafy vegetables, or with apples and other fruits for sauces, or with prunes for prune whip.

Nutritionists recommend at least 2 or 3 servings of vegetables and some fruit every day, cooked or raw, not only for the mineral and vitamin values of these foods, but because of their fibrous structure.

-- - h - - -

INFORMATION FOR THE PRESS

U.S. DEPARTMENT OF AGRICULTURE
Office of Information
Press Service

WASHINGTON, D. C.

RELEASE FOR PUBLICATION
MARCH 18, 1936 (WEDNESDAY)

THE MARKET BASKET

by

Bureau of Home Economics, U. S. Department of Agriculture

THE PATTERN FOR A WELL-BALANCED DIET

When we know by heart all the foods rich in proteins, minerals and vitamins and can recite the vitamin alphabet forward and back, how shall we apply our learning to the every-day business of putting a good square meal before the family?

There are a good many elements in satisfaction, of course. The choice of foods, their quality, the quantity provided, the cooking, the serving--all these, not to mention the individual's appetite at the moment, enter into his verdict on a meal. But choice of foods is fundamental. A "good square meal" is entitled to the name only if it is a well-balanced meal, and whether it is that or not depends upon the variety of foods it offers. Variety here, however, does not mean just any assortment of different foods. It means a selection which follows a certain pattern based on the chemical content of the foods and their value to the human body.

The pattern is not narrow or limiting, says the Bureau of Home Economics of the U. S. Department of Agriculture, but is a practical guide to scientific meal-planning. Within its outlines there is room for any number of choices and combinations, according to the resources and resourcefulness of the housekeeper, and with deference, likewise, to the average family appetite.

Following the balanced diet pattern amounts to this: Select each day some food or foods from each of the following five classes of common commodities: (1) Milk in some form; (2) vegetables and fruits; (3) meat, fish, poultry and eggs; (4) bread and cereals, and (5) fats and sugars.

The scientific basis of that pattern is this: The body must have the kinds of food it needs for its different purposes. Some kinds are needed to build bone, blood, muscle and the other body tissues, and some to keep the body in good condition. Still others are needed to supply the energy required to carry on the life processes within the body, and the day's activities, work or play.

The body uses, however, not bread or meat or milk or any other food commodity as such, but the chemical substances of which these commodities are composed--namely, proteins, minerals, and vitamins, carbohydrates and fats. The first three classes of food in the pattern--milk, vegetables and fruits, and meat, fish, poultry and eggs--are those we rely on chiefly for their proteins, minerals and vitamins, which are the substances needed for body building and proper functioning. The other two classes--the cereals and sugars (for carbohydrates) and the fats--are the chief energy foods, though the cereals may also be good sources of protein and minerals. Nutritionists say make sure of the first three classes, in the pattern, and then add the others until our energy requirement is met.

All this, of course is a simplified statement of a complicated set of facts. The different classes of food commodities overlap in food values because most foods contain at least a little of several essential food substances. But the proportions vary widely. A food that contains a great deal of protein may contain a very little carbohydrate, a food that is rich in vitamin A may furnish little or no vitamin C, and so on. For practical purposes, the variety pattern is worked out by using each class of foods for its principal food values, letting its other contributions count up as they will--which will be all to the good for the diet as a whole. Bigin, shall we say, with milk, and run through the list:

Milk furnishes more kinds of food value than any other one food. Milk is most important, however, for its calcium and phosphorus, its vitamins A and G, its high quality protein, and its fat. It contains very little iron, not much vitamin B, very little vitamin C, and very little carbohydrate. To get enough of those essential substances, we must look to other foods.

Vegetables and fruits supply to large extent the minerals and vitamins not sufficient in milk, especially iron and vitamins B and C. Some of them also furnish calcium, phosphorus, vitamin A and vitamin G. They furnish protein, and they furnish carbohydrates. But milk, vegetables and fruits combined do not furnish enough protein of the best quality, nor enough of certain minerals and vitamins, nor enough energy value.

Meat, fish, poultry and eggs are the chief protein foods, and some of them furnish iron. Meats such as liver and kidney, and certain fish, are good sources of vitamins A, B and D, as are eggs also, and all these foods furnish vitamin G. They also furnish fat. With milk, vegetables, fruits, and either meat, fish, poultry or eggs, the pattern still calls for energy foods.

Bread and cereals are the most important energy foods. All the grains are rich in carbohydrates, which are burned in the body for energy. They furnish some proteins, too, and whole-grain cereals and whole-grain flours are good sources of iron and vitamin B. We depend upon them primarily as sources of energy, however.

Fats--butter, margarine, bacon, salt pork, and the cooking or salad oils,--are useful chiefly as sources of energy. Sugars or sirups also are energy foods, being concentrated carbohydrate.

A day's bill of fare on this pattern can be fitted to any schedule. The important thing is to include the variety of foods called for by the pattern--in one day if practicable, but at least within two or three days. The number of choices within each class of foods, and the different ways of utilizing each article of food make possible an endless variety of menus providing all the essentials of a balanced diet.

INFORMATION FOR THE PRESS

U. S. DEPARTMENT OF AGRICULTURE
Office of Information
Press Service

WASHINGTON, D. C.

RELEASE FOR PUBLICATION
MARCH 25, 1936 (WEDNESDAY)

THE MARKET BASKET
by
Bureau of Home Economics, U. S. Department of Agriculture

\- - -

CHOICES AMONG THE DAIRY PRODUCTS

The milk supply this year, according to reports received by the U. S. Department of Agriculture, will probably be greater than last year, even though the number of cows on the farms is less. This expectation presupposes average weather and crop conditions during the months ahead. But with more and cheaper feed for the cows than in the early months of last year there should be on the whole a higher yield of milk per cow. Also there should be more butter and cheese.

Counting all forms of milk and dairy products, this means for the United States an average supply of a little more than a quart a day per person. As figured out for 1933, the latest statistical showing, we consumed almost 18 pounds of butter per person, almost 5 pounds of cheese, a little over 14 pounds of evaporated milk, 1 2/3 pounds condensed milk per person in that year.

In those figures, says the Bureau of Home Economics of the U. S. Department of Agriculture, is a suggestion of the infinite variety of uses we find for milk, and the choices in dairy products that are available to us. The amount of milk on hand in the household, or easily to be had, often determines what kind of soup to have for dinner, how to cook the meat or vegetables, or what shall be the dessert. "Milk to cook with" is one of the cherished resources of the kitchen, while as for

cheese, there are so many kinds and ways to use it that the possibilities can hardly be counted. The housekeeper's choice may turn on preference, or it may turn on which is easiest to get, easiest to use, easiest to keep on hand, or which costs the least. The cost, of course will vary from place to place and between farm and city.

As for food value, which is the first consideration in planning meals, the dairy products, except cream and butter are very much alike. Fresh fluid milk, unskimmed, is about 13 percent solid food material -- which is more solid than many of the common vegetables contain. The milk solids consist of protein and fat in about equal amounts (3.4 and 3.9 percent), a little more sugar (lactose, or milk sugar 4.9 percent), and almost 1 percent mineral matter, of which calcium and phosphorus are the most important constituents. Dissolved in the milk fat are vitamins A and D, and in the liquid is vitamin G, with a little of vitamins B and C if the milk is used at once. The rest is water -- 87 percent.

Cream is that portion of milk, rich in milk fat, which rises to the top when the whole milk is allowed to stand. Single cream as sold commercially should be not less than 18 percent fat, and whipping cream not less than 30 percent fat. Butter is concentrated milk fat, containing some water, a little curd, and usually salt, with not less than 80 percent fat. Skimming the milk or separating the cream for butter-making takes off not only the fat but the vitamins A and D that are in the fat.

Skim milk and buttermilk lack the milk fat and the vitamins removed with the cream or butter, but they retain practically all the mineral values, much of the protein, the milk sugar, and vitamin G.

Because of the importance of milk as food, and because unclean milk is often a carrier of disease, the commercial dairies in most communities are legally subject to inspection and regulation by the health authorities. As a result, much of the milk on the market is graded and labeled according to specified standards and tests of purity. Some of it is sold as "raw milk", but more of it is "pasteurized".

"Raw milk" is milk as it comes from the cow. "Certified milk" is raw milk which passes especially rigid inspection by medical authorities as meeting specified sanitary requirements.

"Pasteurized milk" is milk which has been heated evenly to a temperature not lower than 142 degrees Fahrenheit for not less than 30 minutes and then promptly cooled to 50 degrees or lower. This treatment destroys the bacteria of disease and most of the other bacteria, about 99 percent usually. The heat leaves little if any of vitamins B and C in pasteurized milk, but makes the milk safer and also makes it keep much longer than raw milk.

Alternatives to fresh fluid milk are the milks that come in cans or packages--"evaporated milk", "condensed milk", and dried milk". All these are made from fresh cow's milk, and they have about the same food value as the corresponding fluid milk.

"Evaporated milk" is just what the name suggests--fluid milk evaporated down to about half its original weight, which is to say, with about half its original water content evaporated out. It is then run into cans, sealed, and sterilized. One pound of evaporated milk represents on the average 2 pounds of fresh whole milk. Seventeen ounces of evaporated milk, plus water to fill up a quart measure, is approximately equivalent to a quart of fresh pasteurized milk. Diluted in this way, evaporated milk may be used for most of the purposes for which fresh milk is used.

"Condensed milk", sweetened, is evaporated milk with sugar added. One pound represents about 2-1/4 to 2-1/2 pounds of fresh milk. Condensed milk can, of course, be used only where milk and sugar are called for.

"Dried milk" is made by several processes, but the product is a dry white powder containing practically all the food values of the original milk. Dried whole milk contains the milk fat. Dried skim milk, because it contains practically none of the fat of whole milk, keeps better than dried whole milk, and costs less. Just 3-1/2 ounces of dried skim milk mixed with 3-3/4 cups of water

makes the equivalent of a quart of fresh skim milk, and can be used in the same ways. With 1 1/2 ounces of butter, this mixture is the equivalent of a quart of whole milk. The powder "as is" can be added to flour mixtures for bread or cakes.

Cheese, made from the curd of milk into many forms with many flavors, serves different purposes in the meal--in main course, salad, or dessert. Some kinds of cheese are made of whole milk, some of skim milk, and some of whole or partly skimmed milk. In the United States the word "cheese", alone, is understood to mean American cheddar cheese, called also just American cheese. This is made of whole milk, and is the familiar yellow cheese commonly used for such dishes as Welsh rabbit, tomato rabbit, cheese souffle, or cheese toast. Cottage cheese, or Schmierkase, is usually made of skim milk.

The dairy products as a group afford many choices and possibilities for contributing to the kind of variety which, within the essential variety pattern of good diet, makes the table interesting from day to day.

- Br Ph -